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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/644,012	08/22/2000	Michael J. Davis	LT1101	1283

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01/20/2004

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EXAMINER

JACKSON, MONIQUE R

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

069

Office Action Summary	Application No.	Applicant(s)	
	09/644,012	DAVIS ET AL.	
	Examiner	Art Unit	
	Monique R Jackson	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-35 and 37 is/are pending in the application.
- 4a) Of the above claim(s) 11-15 and 28-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-10,16-27 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Applicant's response regarding the election in Paper No. 5 being treated as an election without traverse is acknowledged. Though the Applicant stated in Paper No. 5 that the election was with traverse, the Applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, and hence the election was treated as an election without traverse (MPEP § 818.03(a)).

2. The amendment filed 8/11/03 has been entered. Claims 7 and 36 have been canceled. New claim 37 has been added. Claims 1-6, 8-35 and 37 are pending in the application. Claims 11-15 and 28-35 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention or species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5.

3. The information disclosure statement filed 8/11/03 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. Further, given that a Form 1449 was not submitted, the information disclosure statement filed fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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5. The claim objections and rejections under 35 U.S.C. 112 and 35 U.S.C. 102 as recited in paragraphs 3-8 of the prior office action have been withdrawn in light of the amendment filed 8/11/03.

Claim Rejections - 35 USC § 112

6. Claims 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 19 recites the limitation “adhesive of Claim 1, wherein the toughening agent is polyvinyl butryal” however Claim 9 recites that the toughening agent is selected from the group consisting of poly(vinyl butyral-co-vinyl acetate) resins, partially hydrolyzed poly(vinyl butyral-co-vinyl acetate) resins, styrene-butadiene block copolymers, styrene-ethylene-styrene block copolymers, and styrene-ethylene-butylene-styrene block copolymers”. Though Claim 1 recites copolymers of vinyl butyral, it does not recite “polyvinyl butyral” - a homopolymer of vinyl butyral as the term is accepted in the art.

Claim Rejections - 35 USC § 103

7. Claims 1-6, 8-10, 16-22, 24-27 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 921 158 in view of Clough et al (USPN 6,518,362) and Sugio et al (USPN 4,496,695.)

8. EP'158 teaches poly(phenylene ether)(PPE) thermoset compositions comprising PPE, an allylic compound, at least one of a brominated epoxy compound and a mixture of a brominated and non-brominated epoxy compound, and at least one of a cure catalyst or a curing agent wherein the compositions are curable and flame resistant (Abstract.) The PPE has a number average molecular weight of from about 3,000 to about 15,000 g/mol and is preferably poly (2,6-

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dimethyl-1,4-phenylene ether) or poly(2,6-dimethyl-1,4-phenylene-co-2,3,6-trimethyl-1,4-phenylene ether) which read on the instantly claimed poly(arylene ether) resins and wherein the low molecular weight PPE resin can be formed by reacting high molecular weight resin with a peroxide (Page 3, line 5-Page 7, line 18.) The epoxy or the brominated epoxy compounds taught by EP'158 include those as instantly claimed including the condensation product of a bisphenol polyglycidyl ether, such as diglycidyl ether of bisphenol A or F, and a bromine-substituted bisphenol, such as tetrabromobisphenol A as in instant Claims 8 and 9, wherein the brominated epoxy component(s) are utilized to impart sufficient flame retardancy to the thermoset resin and hence it is preferred that the brominated epoxy components be used at levels such that the total bromine content exceeds about 10% by weight of the curable composition, more preferably at levels exceeding about 10% by weight of the poly(phenylene ether) (Page 7, line 50-Page 9, line 9.) EP'158 further teach that the composition may comprise additional additives such as fire retardant additives, fillers, plasticizers, colorants, and additional thermoset or thermoplastic resin additives for the purpose of improving properties such as toughness, impact strength or thermal stability (Page 9, line 28-39.) EP'158 teach that preferred embodiments comprise PPE in an amount of from about 2 to about 60 percent by weight of the total composition; the allylic compound in an amount of from about 40 to about 80 percent by weight of the total composition; at least one of a brominated epoxy compound and a mixture of a brominated and non-brominated epoxy compound in an amount of from about 0.01 to about 50 percent by weight of the total composition; and a cure catalyst or curing agent in an amount from 0.01 to 6% by weight of the total composition (Page 3, lines 21-28; Claim 2.) EP'158 further teach that the brominated epoxy compound comprises from about 0.01 to about 40% by weight of the total composition

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(Claim 5.) EP'158 also teaches that the allylic compound is preferably a triallyl cyanurate, triallyl isocyanurate, diallyl phthalate or an allyl glycidyl ether (Claim 10.) EP'158 teach specific examples of the curable composition wherein the weight percentages of the components fall within the instantly claimed ranges particularly given that the instantly claimed invention comprises components so broadly defined that they read upon one another.

9. Though EP'158 teach that the curable composition can further comprise a toughening agent or a plasticizer, EP'158 does not specifically teach the toughening agents as instantly claimed in an amount as claimed. However, polyvinyl butyral resins, polyvinyl acetate resins and styrene butadiene block copolymers are obvious species of toughening agents utilized which are suitable in the art for providing toughening properties to similar curable compositions as taught by Clough et al or Sugio et al, wherein Clough et al teach that it is typical in the art to include an elastomeric or thermoplastic toughening agent such as poly(styrene-co-butadiene) in an amount of about 1:20 to about 1:4 with a curable thermosetting resin (Background) and wherein Sugio et al teach that vinyl butyral resin as well as vinyl acetate resin can be utilized singly or as a mixture in a PPE curable resin to improve physical properties of the resin. Though Sugio et al do not specifically teach poly(vinyl butyral-co-vinyl acetate) or the hydrolyzed derivative thereof as instantly claimed, given that vinyl butyral is a known derivative of vinyl acetate and given that Sugio teach that these two resins may be utilized as a mixture, a copolymer of the two resins would have been an obvious functionally equivalent toughening resin, wherein it is further well known in the art that partially hydrolyzed derivatives of vinyl acetate resins are functional equivalents to the vinyl acetate resins. Therefore, one having ordinary skill in the art at the time of the invention would have been motivated to utilize any

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conventional toughening agent known in the art including those taught by Clough et al and Sugio et al or conventional derivatives thereof in an amount necessary to provide the desired toughening properties for a particular end use wherein Clough et al teach that typically toughening agents are provided in an amount within the instantly claimed range.

10. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 921 158 in view of Clough et al and Sugio et al and in further view of Lee, Jr. (USPN 5,397,822.) The teachings of EP'158 are discussed above. Though EP'158 teach that the polyphenylene ether composition can further comprise a plasticizer, EP'158 does not specifically teach the plasticizers as instantly claimed however it is well established in the art that phosphate compounds are conventionally utilized in the art as plasticizers, wherein Lee specifically teaches that organic phosphates including those as instantly claimed are suitable plasticizers in polyphenylene ether compositions (Abstract; Col. 8.) Therefore, one having ordinary skill in the art would have been motivated to include these conventional plasticizers in an amount necessary to provide the desired plasticizing effect for a particular end use of the composition taught by EP'158.

Response to Arguments

11. Applicant's arguments filed 8/11/03 have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R Jackson whose telephone number is 703-308-0428. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Monique R. Jackson
Primary Examiner
Technology Center 1700
January 7, 2004